

# OSMAN AYDOĞAN

Software Engineer · AI / ML

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## EDUCATION

### Fırat University

Software Engineering

GPA: 3.21/4.00 • Focus: AI System Design & Agentic Workflows

Relevant Coursework: Data Structures and Algorithms; Database Systems; Artificial Intelligence; Machine Learning; Probability and Statistics; Software Engineering.

### Wyższa Szkoła Technologii Informatycznych w Katowicach

Study Abroad – Software Engineering

Elazığ, Türkiye

Katowice, Poland  
Jan 2024 – March 2024

## EXPERIENCE

### İletişim Yazılım

AI Engineer · Industrial AI & Full-Stack Development

- Built a real-time 3D digital twin of a production/warehouse line in a two-person team: a FastAPI backend with a React / three.js interface that mirrors live shop-floor state in the browser.
- Designed a responsible-AI recruitment pre-screening system for HR decision support — the AI ranks candidates and surfaces supporting evidence, while a human always makes the final decision and no one is auto-rejected. Personal data (PII) is masked before it ever reaches any AI step; designed around the field's academic literature and KVKK/GDPR compliance.
- Built the data and feature-engineering pipeline for a predictive-maintenance project estimating the Remaining Useful Life (RUL) of an industrial blade from sensor data (~71k rows of real production data), preserving time-series structure throughout.
- Worked in an LLM-assisted, test-first (TDD) workflow; studied agentic-AI and LLM orchestration patterns (prompt chaining, routing, orchestrator-workers, evaluator-optimizer) and brought them into the build.

### Optimal Location Planner

Software Developer & Data Analyst

- Developed a web application that optimizes facility locations using the p-Median optimization problem. Calculated real road distances using Google Maps Distance Matrix API, producing mathematically proven optimal results for 100+ demand points and 15 candidate locations.
- Implemented a MILP (Mixed-Integer Linear Programming) model with Python (Flask, PuLP), guaranteeing global optimum via the Branch and Bound algorithm.
- Achieved a 1000x speed increase compared to brute-force methods (solving 3 million combinations in ~2 seconds).
- Added customizable terminology support for retail, healthcare, logistics, public, and energy sectors.

### Stroke Detection Project

Data Science Project Researcher

- Conducted comprehensive Exploratory Data Analysis (EDA) on healthcare data to identify and visualize risk factors.
- Prepared datasets for modeling using One-Hot Encoding and normalization techniques during the data preprocessing phase.
- Developed predictive models using Scikit-learn, achieving high accuracy in estimating patient stroke risks with a KNN classification model.

Bursa, Türkiye

Feb 2026 – Jun 2026

Istanbul, Turkey

Nov 2025 – Dec 2025

Katowice, Poland

Jan 2024 – March 2024

## SKILLS & INTERESTS

- **Languages & Core:** Python (Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn), SQL, JavaScript, HTML/CSS, Java, C#.
- **Backend & Tools:** FastAPI, REST / JSON APIs, Git & GitHub, Jupyter Notebook.
- **AI / ML:** applied machine learning & data analysis (scikit-learn, EDA, classification), embeddings & semantic search (BGE-M3), RAG.
- **LLM & Agentic Development:** LLM-assisted development, agentic workflows & agent orchestration patterns (prompt chaining • routing • orchestrator-workers • evaluator-optimizer), tool / function calling, Model Context Protocol (MCP), context engineering.
- **Practices:** test-driven development (TDD), Git-based collaboration.
- **Frontend / 3D:** React, three.js.
- **Spoken Languages:** English (Professional Working Proficiency), Turkish (Native).
- **Interests:** Data Science Research, AI Technologies, Reading, Productivity Tools, Blogging, Travel.

## ONLINE PROFILES

**GitHub:** [github.com/OsmanAydogan](https://github.com/OsmanAydogan)

**LinkedIn:** [linkedin.com/in/osman-aydogan](https://www.linkedin.com/in/osman-aydogan)

**Medium:** [medium.com/@aydoganosman17](https://medium.com/@aydoganosman17)